

**WHAT IS CLAIMED IS:**

1. An apparatus for the evaporative cooling of a liquid product, comprising a vacuum chamber (1) divided into a first, centrally positioned space (6) and a second space (7) which concentrically surrounds the first space (6) and in which both of the spaces (6, 7) are open towards the upper end wall (2) of the vacuum chamber (1), and the first space (6) has an outlet for condensed steam (25) and the second space (7) has an inlet (11) for steamed product, as well as an outlet (12) for the product, the apparatus further including a circulation circuit for coolant liquid, **characterised in that** the first space (6) is extended downwards so that it extends at least as long below the bottom end wall (4) of the vacuum chamber (1) as the extent of the space (6) inside the vacuum chamber (1).
2. The apparatus as claimed in Claim 1, **characterised in that** the first space (6) has an upper part (9) located inside the vacuum chamber (1) and a lower part (8) located beneath the bottom end wall (4) of the vacuum chamber (1).
3. The apparatus as claimed in Claim 1, **characterised in that** the inlet (11) for product is tangentially disposed in the wall (3) of the vacuum chamber (1) and is formed as a vertical gap.
4. The apparatus as claimed in Claim 1, **characterised in that** the circulation circuit for coolant water discharges with the conduit (20) in the upper region of the lower part (8) of the first space (6).
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5. The apparatus as claimed in Claim 1, **characterised in that** the outlet (25) for condensed steam is a spillway overflow.
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6. The apparatus as claimed in Claim 4, **characterised in that** the conduit (20) is provided in its upper region with a number of downwardly directed apertures (21).

7. The apparatus as claimed in Claim 4, **characterised in that** the circulation circuit for coolant liquid includes an outlet (15), conduits (16, 20, 28), a centrifugal pump (17), as well as a cooler (30).